

REMARKS

This paper is in response to the official action dated March 27, 2003 (hereafter, the "official action"). This response is timely-filed, as it is accompanied by a petition for extension of time to file in the second month, and a check covering the requisite extension fee of \$410.

Claims 1-23 and 26-31 are pending in this application. By the foregoing amendments, claims 1, 2, 4, 5, 9, 10, 23, 26, 30, and 31 have been amended, claims 7, 8, 28, and 29 have been canceled, and claim 32 has been added. No fee is due for new claim 32. Claims 1-6, 9-23, 26, 27, and 30-32 are presently at issue.

Support for the amendments to claims 1 and 23 may be found, for example, at pages 3, 4, 8, and 9. Support for the amendments made to claims 2, 4, 5, 9, 10, 26, 30, and 31 may be found, for example, in the claims as originally-filed. Support for new claim 32 may be found in originally-filed claims 1 and 13. No new matter has been added.

The specification has been amended to include appropriate section headings and to correct typographical errors. Figure 1 of the drawings has been amended to include the designation "Prior Art." Accordingly, the objections to the specification and the drawings have been overcome, and should be withdrawn.

Claims 1-19, 22, 23, and 26-31 have been rejected under 35 U.S.C. §102(e) as anticipated by U.S. Patent No. 6,395,406 to Ueda *et al.* ("Ueda"). Claims 20 and 21 have been rejected under 35 U.S.C. §103(a) as obvious over Ueda.

The various bases for the claim rejections are addressed below in the order presented in the official action. Reconsideration of the application, in view of the following remarks, is solicited.

Claim Rejections - 35 U.S.C. §102(e)

The applicants respectfully traverse the rejections of claims 1-6, 9-23, 26, 27, and 30-32 as anticipated under 35 U.S.C. §102(e) by Ueda.

It is well-established that each and every limitation of a claimed invention must be present in a single prior art reference in order for anticipation to occur. *See, for example, C.R. Bard, Inc. v. M3 Systems, Inc.*, 157 F.3d 1340, 1349 (Fed. Cir. 1998). The standard for

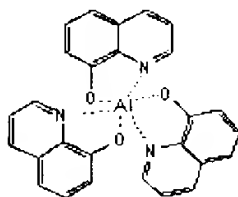
anticipation is one of strict identity. This standard has not been satisfied with respect to the claims as amended herein.

In the official action, the examiner noted that "Ueda discloses an opto-electrical device comprising an anode (1), a cathode (elements 4, 5, and 6) and an opto-electrically active region (3) located between the electrodes..." See official action at page 5. The examiner then asserted that Ueda discloses a three-layer cathode structure wherein both the first and the second cathode layers 6 and 4 may comprise "a compound of a group 1 or 2 metal, the compound being a halide, or fluoride." *Id.*

However, Ueda does not disclose such a device. Ueda discloses organic light-emitting devices including three-layer cathode structures comprising an electron-transporting layer, which is in contact with the electroluminescent material, a composite electron-injection layer, and a cathode layer. For example, Figures 2 and 3 of Ueda disclose three-layer cathode structures including an electron-transporting layer which is in contact with the electroluminescent material.

The electron transporting materials of Ueda are *not* metals or metal compounds. *Rather, the electron transporting materials are invariably non-metallic organic materials.* See Ueda at column 4, line 65 - column 5, line 15 and at column 6, lines 1-3. For example, Ueda draws a distinction between an electron transporting material and a metal in discussing a mixing ratio for forming an electron injection layer comprising a mixture of a metal oxide and/or a metal halide *and* (1) an electron transporting material *or* (2) a metal. See Ueda at column 5, line 16-23.

Additionally, Examples 5-10 and 15-17 exemplify organic light-emitting devices including three-layer cathode structures and illustrate that the electron-transporting layers comprise organic materials. In Examples 5-10, 15, and 16, the electron-transporting layer in contact with the electroluminescent material is aluminum trisoxine. Aluminum trisoxine is also the predominant component of the "organic luminous" layers in each of these examples. Aluminum trisoxine has the following structure:



Aluminum trisoxine

In Example 17, the electron-transporting layer in contact with the electroluminescent material is an oxadiazole compound. *See* Ueda at column 13, lines 4-13.

Accordingly, Ueda does not disclose or suggest an opto-electrical device having a three-layer cathode electrode structure including a *first layer comprising a metal* having a work function below 3.5 eV, as recited in claims 1-19, 22, and 26-31. Similarly, Ueda does not disclose a method for forming an opto-electrical device comprising depositing over a region of opto-electrically active material a metal having a work function below 3.5 eV to form a first cathode layer. Therefore, it is respectfully submitted that the anticipation rejection of claims 1-6, 9-23, 26, 27, and 30-32 should be withdrawn.

Claim Rejections - 35 U.S.C. §103(a)

In order to establish a *prima facie* case of nonobviousness, the prior art references must teach or suggest all of the claim limitations. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991); *see also* M.P.E.P. § 2142. Because Ueda does not teach or suggest all of the claim limitations of the claims as amended herein, the applicants respectfully traverse the rejections of claims 20 and 21 for the same reasons provided above with respect to claims 1-6, 9-23, 26, 27, and 30-32.

Claims 13 and 32

Additionally, in an official action dated April 15, 2003, which issued in U.S. Application Serial No. 09/913,380,¹ the examiner stated that:

[T]he prior art of record neither shows nor suggests the material having a work function below 3.5 eV existing in the first layer

¹ U.S. Application Serial No. 09/913,380 has the same inventorship and is directed to similar subject matter with respect to the present application. Additionally, U.S. Application Serial No. 09/913,380 is being examined by the examiner of record in this case.

having a higher work function than the material having a work function below 3.5 eV of which the second layer is comprised.

See official action dated April 15, 2003, in U.S. Application Serial No. 09/913,380 at page 6. The applicants agree with the examiner's determination that the art of record in these cases does not disclose or suggest such a device. Accordingly, claim 13 and new claim 32, which include this limitation, should be allowable. Notice thereof is earnestly solicited.

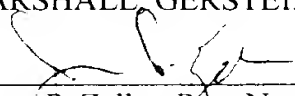
Conclusion

In light of the foregoing, it is respectfully submitted that the application is now in condition for allowance and the applicants respectfully request the same. Should the examiner wish to discuss any matter of form or substance in an effort to advance this application to allowance, he is respectfully invited to telephone the undersigned attorney at the indicated telephone number.

Respectfully submitted,

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